



Dr. James 'Buck' Sisson

Specialist in subsurface hydraulic-property measurement instrumentation

Education

Dr. James "Buck" Sisson received his Ph.D. in Agronomy, from New Mexico State University, Las Cruces, New Mexico, in 1980 and his M.S. and B.S. from Montana State University in Agronomy and Agriculture Business, respectively.

Experience and Achievements

Prior to his INL experience, Dr. Sisson served on the graduate faculty at Kansas State University, Manhattan, Kansas, where he taught water movement and chemical transport in soil systems as well as advanced soil physics and mechanics of erosion. Prior to serving at K-State, he was employed on the Hanford Reservation as a vadose zone hydrologist researching radionuclide transport associated with tank leaks and crib discharges. Previously, Buck and Kay (his wife) served in Peace Corps in Iran as soil scientists.

Dr. Sisson's specialty has been the invention of water potential, water content and hydraulic property measurement instrumentation for quantifying mass transfer of water and solutes at great depths below land surface. He also designs field experiments to characterize sites for contaminant transport and water movement potential in conjunction with modeling studies, initiates thermal infrared studies to estimate the vertical connectivity of fracture apertures, and supports commercial transfer of intellectual property to outside firms and serves as product champion for vadose zone instruments developed at the INL for applications throughout the DOE Laboratory system.

INL'S LIFETIME ACHIEVEMENT AWARD FOR INVENTORSHIP

Patents

- U.S. Patent 5,520,248 - Method and Apparatus for Determining the Hydraulic Conductivity of Earthen Material
- U.S. Patent 5,644,947 - Tensiometer and Method of Determining Soil Moisture Potential in Below-grade Earthen Soil
- U.S. Patent 5,758,538 - Tensiometer and Method of Determining Soil Moisture Potential in Belowgrade Earthen Soil
- U.S. Patent 5,915,476 - Monitoring Well
- U.S. Patent 5,969,242 - Isobaric Groundwater Well
- U.S. Patent 6,289,725 - Field Matric Potential Sensor
- U.S. Patent 6,308,563 - Vadose Zone Isobaric Well
- U.S. Patent 6,405,588 - Monitoring Well
- U.S. Patent 6,539,780 - Self-Compensating Tensiometer and Method
- U.S. Patent 6,609,434 - Method of Retrieving a Liquid Sample, a Suction Lysimeter, a Portable Suction Lysimeter, a Lysimeter System, and a Deep Lysimeter
- U.S. Patent 6,752,007 - Horizontal Advanced Tensiometer
- U.S. Patent 6,772,621 - Tensiometer Methods and Apparatus